



the Skyscraper

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AMATEUR ASTRONOMICAL SOCIETY OF RHODE ISLAND * 47 PEEPTOAD ROAD * NORTH SCITUATE, RHODE ISLAND 02857 * WWW.THESKYSCRAPERS.ORG

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February meeting cancelled due to weather

Upcoming Meetings

Contact Steve Siok for more information: ssiok@cox.net

March 4 at North Scituate Community Center
Cosmology and the Decay of Dark Matter by Gordon Blackadder (Brown University)

April 1 at North Scituate Community Center (if needed)

May 6 at Seagrave Observatory

June 3 at Seagrave Observatory

AstroAssembly: September 30/October 1 at Seagrave Observatory/North Scituate Community Center Reserved

Phases of the Moon

Last Quarter Moon
February 1 03:28

New Moon
February 8 14:39

First Quarter Moon
February 15 07:46

Full Snow Moon
February 22 18:20



Seagrave Memorial Observatory
Open Nights

Saturdays at 7:00 pm
weather permitting

Friday, February 12: Let's Go "Back to the Moon for Good" at the URI Planetarium

University of Rhode Island Planetarium
Upper College Road, Kingston, RI
Friday, February 12, 2015, 6:00 P.M.
Contact: Francine Jackson: 401-527-5558

It's been over 45 years since humans have walked on the Moon. But, are there plans to go back? Should we? Could we? How could this happen? Please join the URI Planetarium as it debuts this award-winning show about the possibility of returning to our one and only natural satellite. "Back to the Moon for Good" will be shown Friday, February 5th, at 6:00 P.M. In addition, a short program on Light Pollution will be

shown, then The Skies of the URI campus, a live introduction to the night sky.

Admission is only \$5.00, to benefit the University of Rhode Island Planetarium Fund.

The University of Rhode Island Planetarium is located on Upper College Road, on the Kingston campus, across from the Art Center.

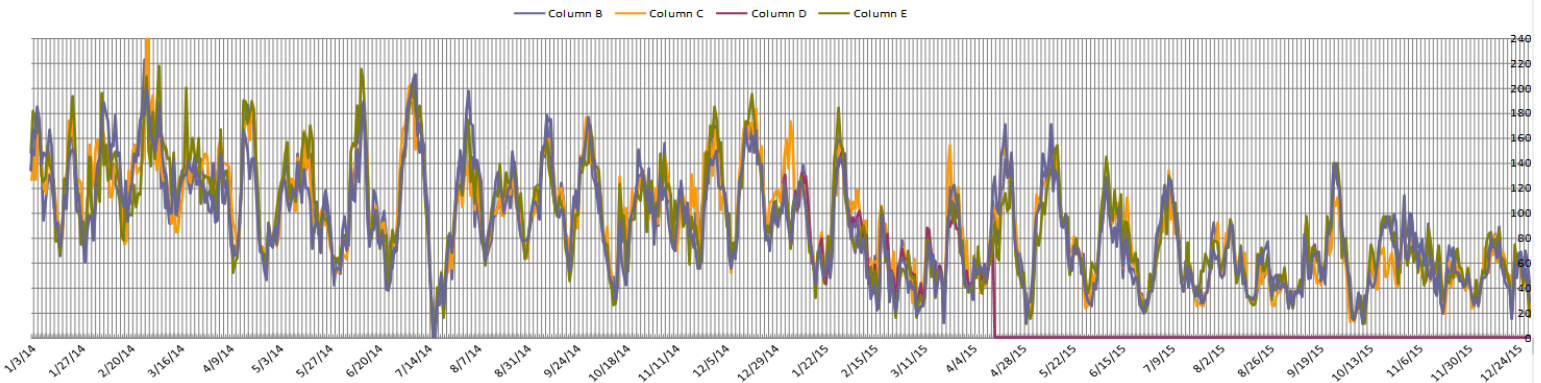
The University of Rhode Island Planetarium is available for programming for schools and other organizations. For more information, please contact Francine Jackson at 401-527-5558.



Skyscrapers Sunspot Count Update

Contact Dave Huestis for more information or to participate.

Skyscrapers Daily Relative Sunspot Number Comparisons



The Skyscraper is published monthly by Skyscrapers, Inc. Meetings are held monthly, usually on the first or second Friday or Saturday of the month. Seagrave Memorial Observatory is open every Saturday night, weather permitting.

Directions

Directions to Seagrave Memorial Observatory are located on the back page of this newsletter.

Submissions

Submissions to The Skyscraper are always welcome. Please submit items for the newsletter no later than **February 19** to Jim Hendrickson, 1 Sunflower Circle, North Providence, RI 02911 or e-mail to jim@distantgalaxy.com.

E-mail subscriptions

To receive The Skyscraper by e-mail, send e-mail with your name and address to jim@distantgalaxy.com. Note that you will no longer receive the newsletter by postal mail.

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Diffuse Emission Nebula in Monoceros

NGC 2237 “Rosette Nebula”

by Las Vegas Astronomical Society

NGC 2237, the “Rosette Nebula,” is a wreath-shaped nebulosity surrounding the open cluster NGC 2244. Easily captured in astroimages, the Rosette is a visual challenge. Fortunately, the Rosette Nebula is easy to find because it surrounds the 5th magnitude open cluster NGC 2244. A line drawn from lambda (λ) Orionis through Betelgeuse and extended an equal distance beyond will bring you to the 4th magnitude star epsilon (ϵ) Monocerotis - a fine double star whose magnitude 4.4 and 6.7 are separated by 12 arc-seconds. After admiring this pair, point your scope two degrees east and a bit north. There you’ll find NGC 2244, which contains several dozen stars of magnitudes 6-12 and spans 24 arc-minutes. Once thought to have been discovered by John Flamsteed around 1690, NGC 2244 was more likely picked up by William Herschel in 1784.

Herschel failed to detect the surrounding nebulosity, and 80 years passed before the Rosette began to be discovered in piecemeal fashion - first by the German astronomer Albert Marth and later by American comet-hunter Lewis Swift. As a result, the Rosette had several NGC numbers, but is primarily identified by the designation NGC 2237.

To see the Rosette well, you’ll need dark skies and a scope/eyepiece combination that yields a 2 degree field to encompass its one-degree-plus width. Binoculars and rich-field telescopes work well and, in slightly light polluted skies, an OIII or UHC is a must.

The Rosette and its embedded cluster lie about 5000 light years away. The entire system is at least 100 light years across.

The purpose of the LVAS Observer’s Challenge is to encourage the pursuit of visual observing. It is open to everyone that is interested, and if you are able to contribute notes, drawings, or photographs, the LVAS will be happy to include them in our monthly summary. If you would like to contribute material, submit your observing notes, sketches, and/or images to either Roger Ivester (rogerivester@me.com) or Fred Rayworth (queex@embarqmail.com). To find out more about the LVAS Observer’s Challenge or access past reports, log on to lvastronomy.com/observing-challenge.



Image by Mario Motta, M.D.



www.easternvoltage.com/dan/charts/finder_ngc2237rosette.pdf

Stories in the Sky: Andromeda, the Chained Lady

by Dave Huestis

I'm sure many of you can recognize more than just a handful of constellations. Even in moderately light polluted skies a knowledgeable observer can easily locate and identify Ursa Major (Big Dipper asterism), Orion or Scorpius. Many of our northern hemisphere star patterns owe their existence to classical Greek mythology, though in some instances their origins date back even further to at least 6000 years ago. With incredibly dark skies and no distractions like television or smart phones, the starry heavens were our ancestors' entertainment. They connected the dots (stars) to form sky pictograms and created intriguing stories to account for their appearance.

And when you become familiar with even a few of these great sky myths, you'll see that human nature hasn't changed for millennia. Just as William Shakespeare incorporated every human condition into his works, the ancients likewise portrayed the best and worst of humanity in their sky lore. And that "tradition," if you will, continues right up to present day with soap operas and reality television, though we will never see a Kardashian constellation!

Today we are going to explore the mythology behind the constellation Andromeda. Then I will highlight two beautiful objects you should attempt to view with either your own telescope or through any of the local observatories' fine instruments.

Each constellation has numerous mythological stories associated with their star pattern. The more well known one associated with Andromeda involves your typical Greek hero, Perseus. Our story begins with Queen Cassiopeia of Ethiopia being overheard boasting she was even more beautiful than the Nereids, sea nymphs famous for their beauty. They complained to Poseidon who was so angry he sent a sea monster (now recognized as the whale Cetus) to destroy the country. Cetus was in the process of laying waste to Ethiopia when King Cepheus consulted the Oracle of Zeus looking for help. The solution presented to Cepheus was to sacrifice his daughter Andromeda to the sea monster to appease the wrath of Poseidon. (That's a common theme in most mythologies...the gods using proxies to do their bidding.) Andromeda was thusly chained to a rock on the shoreline to be de-

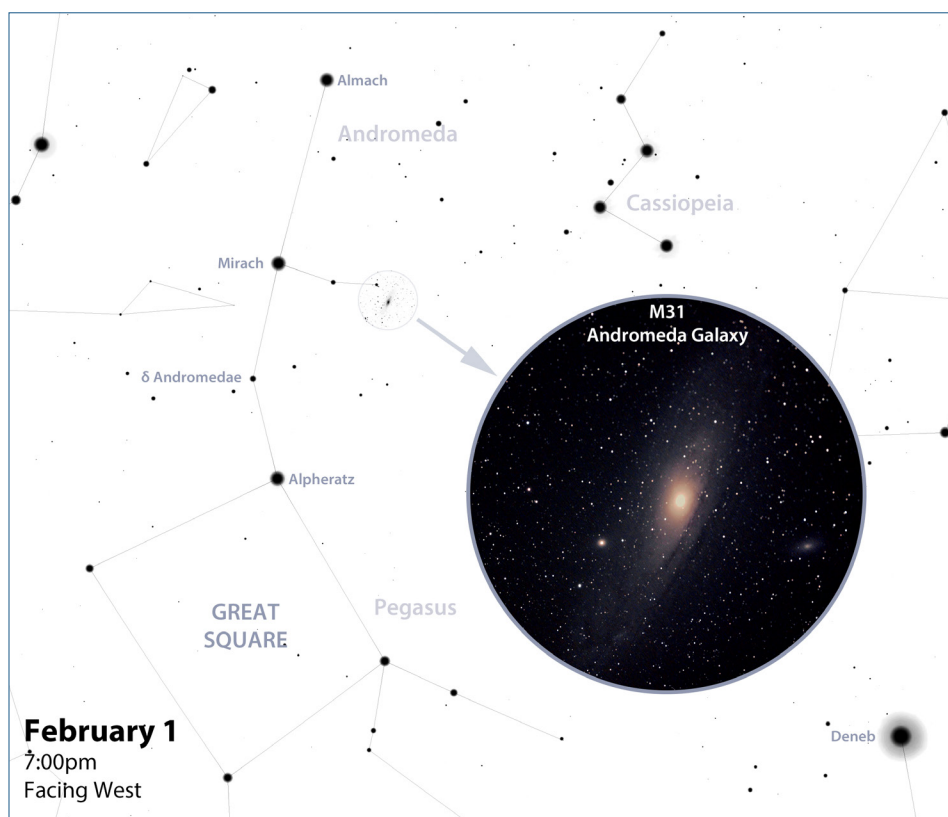
voured by Cetus.

Well, as luck would have it, Perseus was flying by on his winged horse Pegasus just after slaying the Gorgon Medusa, that creature with hair of snakes whose stare could turn anything that gazed upon her into stone. Perseus saw Andromeda's predicament and also noticed how beautiful she was. Since he was still carrying the severed head of the Medusa in a sack, Perseus had a big advantage. He plucked it from the bag for the sea monster to see and Cetus immediately turned to stone. And as most stories of this nature go, Andromeda and Perseus lived happily ever after.

All the constellations associated with this mythological story can be found surrounding Andromeda in the northern hemisphere sky. While Andromeda is an autumn constellation, it can still be seen into mid-March, low above the northwestern horizon. I suggest observing the star pattern and the objects I will be describing during early February with the constellation around 53 degrees high in the sky at 7:00 p.m., though even by the end of the month Andromeda will still be about 34 degrees above the horizon after evening twilight.

While Andromeda ranks 19th in size among the official 88 constellations, it can be challenging to identify, as it does not contain the brightest stars in the sky. Use the accompanying star map for reference. Locate the sideways "M" or "W" shaped group of stars which form much of Cassiopeia in the west-northwest sky. To the left is Andromeda. Look just a short distance in this direction and you should notice a fuzzy path. This object is the Great Andromeda Galaxy, the nearest spiral galaxy to our own Milky Way. It is also known by the designation M31, the 31st entry in a catalog of 110 objects compiled by French astronomer and comet hunter Charles Messier (1730-1817).

It was once called a nebula and was thought to be part of the Milky Way until 1923 when Edwin Hubble determined it to be an "island universe" well beyond the confines of our home galaxy. Later research determined it to be about 2.2 million light years distant, and research in recent years





M31 image by Tom Thibault

has refined it to be 2.5 million light years away. Imagine, the light entering your eye has been travelling through space for 2.5 million years. How's that for an eye test?

This vast system of stars comprising M31 is easy to see with your naked-eye. Its magnitude (brightness) of 3.4 is almost identical to Megrez, the star marking the junction of the handle and bowl of the Big Dipper asterism of Ursa Major. Also, to the naked-eye the galaxy covers an area of sky equal to about three full moon diameters. (Long exposure photographs reveal it to be twice that apparent size across.) So, if you can see Megrez when Andromeda is above the horizon, then it's time to grab a pair of binoculars to enhance the view. Good 7 X 50 binoculars will reveal a little more of the elongated shape of this fuzzy patch of light.

Telescopes of increasing aperture will reveal more of the structure of our galactic neighbor. The Andromeda Galaxy is a barred spiral like the Milky Way, containing about 400 billion stars. It wasn't until 1887 that it was first photographed, revealing its spiral structure. Astronomers now know that M31 has at least two spiral arms that extend outward from the central bulge of the galaxy and are tightly wound around it. Many years ago, when Skyscrapers first obtained a 16-inch Meade Cassegrain telescope, I remember observing the Andromeda Galaxy and detecting the spiral arms and dust lanes. The view was quite impres-

sive. If clear skies prevail during the open nights at the local observatories, ask one of the volunteer sky interpreters to show you the Great Andromeda Galaxy.

The four brightest stars in order of brightness in Andromeda are Alpheratz, Mirach, Almach and Delta Andromeda. Alpheratz marks one corner of the Square of Pegasus, and in fact until 1930 was part of that constellation. A favorite target for amateur astronomers is the double star Almach. While you can see this second magnitude star with your naked-eye (it's as bright as the stars defining the Big Dipper asterism), a telescope will be necessary to observe its fifth magnitude companion. Almach is a golden yellow sun and its companion is indigo blue. However, there is more to this system than "meets the eye." The blue companion itself has another star orbiting it, and that star also has a star revolving around it as well. So in fact, the Almach star system is comprised of 4 stars. But you'll only be able to see the primary and secondary. The contrasting colors look fine in even small telescopes, rivaling Cygnus' Alberio.

The Chained Lady was placed in the sky for everyone to revere, so it is your obligation on the next clear night to give her the recognition she deserves. Examine the multiple star system Almach 350 light years from the Earth, and explore the Great Andromeda Galaxy, one of approximately 54 island universes in the local group of galax-

ies that includes our own Milky Way.

In conclusion, please take advantage of the observing opportunities provided by the local observatories during their public observing nights, which do continue during the winter months, weather dependent of course. These facilities are unheated, so dress warmly. Seagrave Memorial Observatory (<http://www.theskyscrapers.org>) in North Scituate is open every clear Saturday night. Ladd Observatory (<http://www.brown.edu/Departments/Physics/Ladd/>) in Providence is open every Tuesday night. The Margaret M. Jacoby Observatory at the CCRI Knight Campus in Warwick (<http://www.ccri.edu/physics/observatory.htm>) is open every clear Wednesday night. Frosty Drew Observatory (<http://www.frostydrew.org/>) in Charlestown is open every clear Friday night. Snow or ice can force closures, so please check the respective websites for any cancellation notices before venturing out for a visit. Currently the winter hours for Seagrave and Ladd are 7:00-9:00 p.m., while Frosty Drew begins at 6:00 p.m. with no set end time.

Keep your eyes to the skies.



Dave Huestis is Skyscrapers Historian and has been contributing monthly columns to local newspapers for nearly 40 years. See more at <http://theskyscrapers.org/dave-huestis>

Star Party Update

Newport Art Museum: January 14

Wow, what a turnout we had at the Newport Art Museum on Jan 14th! The museum kindly invited our organization Skyscrapers, Inc. to use their outside grounds to setup our telescopes and show their guests what they can actually see in the night sky!

Because of light pollution, people are only able to readily see and not very well, the moon, Venus and some of the brightest stars in the sky with the naked eye. It takes a decent telescope to view those other wonders and more with greater brightness and detail when the sky is obscured by the city lights!

After the museum's guests toured the stunning art gallery inside the John N. A. Griswold House, they were invited outdoors to see a real telescope, some for the very first time. They viewed the night sky on one of the four telescopes that were setup by our members.

The museum's guests were able to view the Pleiades and the Orion Nebula, courtesy of Jim Hendrickson and his telescope. Jim is really is one of our experts in Astrophotography and has a collection of thousands of spectacular images! If you need advice on capturing images of the planets, occultations or deep-space objects, Jim is one of several of our members well versed in this field.

Skyscraper member Francine Jackson, who I refer to as the "Lady of the Constellations," is also a Staff Astronomer at Brown University's LADD Observatory and writes articles about the night sky on Brown's LADD Observatory's List Serv. Francine brought her small red Edmund Astroscan telescope pointed at the entire moon! What a "Terrific" view from such a small telescope! Telescopes such as these make great starter telescopes for anyone and you'll be amazed at what you can see. Edmund Scientific no longer makes this particular model that Francine has, but I did find one on Ebay with stand for about \$100.

Jim Crawford brought his 80 mm refractor telescope which he also aimed at the moon but at a different area and using a higher magnification than Francine's. Jim was able to show more detail and brightness because the scope is more powerful.

Our President Bob Horton brought his beautiful hand built red 4.25" telescope pointed specifically at the terminator on the moon using 254X. We were able to view a large crater right on the terminator, it's interior in shadow, except for the very tip of it's central peak, which was lit up by the rising sun. That one peak eventually became two peaks, and a bit more of the interior, terraced the wall of the crater which came into view as the sun rose higher. I believe this crater was Theophilus, which lies between Sinus Asperitatis in the north and Mare Nectaris to the southeast about 100km in diameter and 14,000 feet deep and the central mountain, which has several peaks, is about 4,600 feet high.

So the museum's guests viewed three different perspectives of the moon and also viewed the Pleiades and the Orion Nebula. The people were thrilled and amazed at the images they saw with a display of excitement and enthusiasm for Astronomy! This was certainly very appreciated and was a rewarding experience for our members. This is what public outreach is all about and Skyscrapers does it Best!

I also took a couple of beautiful interior photos of the museum as well which shows it's very unique architectural style of that time! The Newport Art Museum, was founded in 1912, and is located on

76 Bellevue Avenue in Newport, Rhode Island.

Many kudos to Bob Horton, Jim Crawford, Jim Hendrickson and Francine Jackson who were kind enough to donate their time traveling to Newport and setting up their own personal equipment for public outreach! We would like more of our members to assist in our star gazing events that promote our organization throughout Rhode Island and the surrounding area of Massachusetts. By doing so were not only educating the public, but making Skyscrapers more visible to the community which would attract more potential members to our organization.

Skyscrapers, Inc Rhode Island's Astronomical Society is located at 47 Peepoad Road in North Scituate, RI. We are open for FREE Public Viewings on Saturday nights (weather permitting), but please visit our website at www.skyscrapersinc.org to see if our observatories are open! We support STEM (Science, Technology Engineering & Math) and also STEAM (Science, Technology Engineering, Art and Math).

Our members offer workshops and we have presentations from some of the world's Renown Astronomers and Scientists, like Kim Arcand NASA's Visualization Lead for the Chandra X-Ray Telescope and author of several books, but most recently "Coloring the Universe: An Insider's Look at Making Spectacular Images of Space" and "Light: The Visible Spectrum and Beyond," MIT Professor Anna Frebel and author of her newly released book "Searching for the Oldest Stars: Ancient Relics from the Early Universe" These books can be found on Amazon.com and are excellent reads. We also had the privilege of having Senior Editor of Sky & Telescope Magazine Kelly Beatty provide a superb presentation on New Horizons Spacecraft and our number one enemy "light pollution" and how, with the help of the International Dark Sky Association and Kelly Beatty we can stop it's progression by contacting out towns, cities and states.

Light pollution has a direct impact on our body's ability to get the proper sleep, the migration pattern of birds and all living creatures that roam the Earth that depend upon a dark sky. Light pollution wastes needless energy! The International Dark-Sky Association in Tucson, Arizona, an environmental group, estimates that one-third of all lighting in the U.S. is wasted, at an annual cost of about 30 million barrels of oil and 8.2 million tons of coal-a total of about U.S. \$2 billion. That oil amounts to generating 14.1 million tons of CO2 per year into the atmosphere, which adds to the global warming problems and all the extra future expenses that will entail, all for light that we do not even fully us

Hope you visit us soon and certainly bring your children so they can become involved in exploring our Universe with us...make it a family trip and have fun!

By Tracy Prell



The Sun, Moon & Planets in February

This table contains the ephemeris of the objects in the Solar System for each Saturday night in February. Times are in Eastern Standard Time calculated for Seagrave Observatory (41.845N, 71.590W).

Object	Date	RA	Dec	Const	Mag	Size	Elong	Phase(%)	Dist(S)	Dist(E)	Rise	Transit	Set
Sun	6	21 16.3	-15 51.3	Cap	-26.8	1946.5	-	-	-	0.99	06:53	12:00	17:07
	13	21 44.1	-13 37.1	Cap	-26.8	1944.1	-	-	-	0.99	06:45	12:00	17:16
	20	22 11.3	-11 11.9	Aqr	-26.8	1941.5	-	-	-	0.99	06:35	12:00	17:25
	27	22 38.0	-8 38.2	Aqr	-26.8	1938.4	-	-	-	0.99	06:24	11:59	17:33
Moon	6	18 52.1	-18 24.1	Sgr	-10	1861.7	34° W	9	-	-	05:06	10:11	15:19
	13	1 27.1	5 50.1	Psc	-11.2	1977.9	59° E	25	-	-	09:45	16:32	23:27
	20	8 02.0	15 49.6	Cnc	-12.5	1865.6	148° E	92	-	-	15:37	22:44	05:44
	27	13 36.9	-7 20.6	Vir	-12.3	1758.5	133° W	84	-	-	21:25	03:09	08:48
Mercury	6	19 30.7	-20 54.8	Sgr	0.1	6.9	26° W	60	0.43	0.97	05:31	10:14	14:58
	13	20 04.0	-20 37.9	Sgr	0.0	6.2	25° W	71	0.46	1.08	05:36	10:21	15:06
	20	20 43.0	-19 22.1	Cap	0.0	5.7	23° W	79	0.47	1.18	05:42	10:33	15:24
	27	21 24.9	-17 04.2	Cap	-0.1	5.4	20° W	85	0.46	1.25	05:46	10:47	15:48
Venus	6	19 10.0	-22 01.1	Sgr	-3.8	12.3	30° W	86	0.73	1.38	05:15	09:54	14:34
	13	19 47.0	-21 04.0	Sgr	-3.8	12.0	29° W	88	0.73	1.41	05:21	10:04	14:47
	20	20 23.4	-19 36.3	Cap	-3.8	11.7	27° W	89	0.73	1.45	05:23	10:13	15:03
	27	20 59.1	-17 40.7	Cap	-3.8	11.4	26° W	90	0.73	1.48	05:23	10:21	15:19
Mars	6	15 01.5	-15 38.0	Lib	0.8	7.1	89° W	90	1.64	1.32	00:40	05:44	10:49
	13	15 14.8	-16 33.5	Lib	0.6	7.5	93° W	90	1.63	1.25	00:29	05:30	10:31
	20	15 27.4	-17 23.7	Lib	0.5	7.9	97° W	90	1.63	1.18	00:17	05:15	10:12
	27	15 39.5	-18 08.6	Lib	0.3	8.5	101° W	90	1.62	1.11	00:05	04:59	09:54
1 Ceres	6	22 32.4	-17 41.6	Aqr	9.2	0.3	18° E	100	2.98	3.9	08:17	13:14	18:11
	13	22 42.9	-16 39.6	Aqr	9.1	0.3	15° E	100	2.98	3.92	07:56	12:57	17:58
	20	22 53.3	-15 36.8	Aqr	9.0	0.3	11° E	100	2.97	3.94	07:35	12:40	17:45
	27	23 03.8	-14 33.6	Aqr	9.0	0.3	9° E	100	2.97	3.95	07:14	12:23	17:32
Jupiter	6	11 32.6	4 28.9	Leo	-2.2	42.9	145° W	100	5.42	4.59	19:57	02:15	08:33
	13	11 30.2	4 46.1	Leo	-2.3	43.4	152° W	100	5.42	4.53	19:26	01:45	08:04
	20	11 27.4	5 05.5	Leo	-2.3	43.9	160° W	100	5.42	4.48	18:50	01:10	07:31
	27	11 24.3	5 26.4	Leo	-2.3	44.2	168° W	100	5.43	4.45	18:18	00:40	07:01
Saturn	6	16 53.6	-20 52.9	Oph	0.5	15.9	62° W	100	10.02	10.44	02:52	07:35	12:18
	13	16 55.7	-20 55.6	Oph	0.5	16	69° W	100	10.02	10.33	02:27	07:10	11:52
	20	16 57.5	-20 57.7	Oph	0.5	16.2	75° W	100	10.02	10.22	02:02	06:44	11:26
	27	16 59.0	-20 59.1	Oph	0.5	16.4	82° W	100	10.02	10.11	01:36	06:18	11:00
Uranus	6	1 04.7	6 13.4	Psc	5.9	3.4	61° E	100	19.97	20.44	09:21	15:45	22:09
	13	1 05.7	6 19.5	Psc	5.9	3.4	54° E	100	19.97	20.54	08:54	15:18	21:43
	20	1 06.7	6 26.2	Psc	5.9	3.4	47° E	100	19.97	20.63	08:27	14:52	21:17
	27	1 07.9	6 33.5	Psc	5.9	3.4	40° E	100	19.97	20.71	08:00	14:26	20:51
Neptune	6	22 42.2	-9 03.6	Aqr	8.0	2.2	22° E	100	29.96	30.87	07:54	13:23	18:52
	13	22 43.2	-8 57.9	Aqr	8.0	2.2	15° E	100	29.96	30.91	07:27	12:56	18:26
	20	22 44.2	-8 52.0	Aqr	8.0	2.2	8° E	100	29.96	30.94	07:00	12:30	18:00
	27	22 45.2	-8 46.1	Aqr	8.0	2.2	2° E	100	29.96	30.95	06:33	12:03	17:34
Pluto	6	19 09.7	-20 55.2	Sgr	14.3	0.2	30° W	100	33.04	33.88	05:08	09:51	14:34
	13	19 10.6	-20 54.2	Sgr	14.3	0.2	37° W	100	33.04	33.82	04:42	09:24	14:07
	20	19 11.4	-20 53.2	Sgr	14.3	0.2	44° W	100	33.05	33.75	04:15	08:58	13:40
	27	19 12.2	-20 52.3	Sgr	14.3	0.2	51° W	100	33.05	33.66	03:48	08:31	13:14



The Loneliest Galaxy In The Universe

by Ethan Siegel

Our greatest, largest-scale surveys of the universe have given us an unprecedented view of cosmic structure extending for tens of billions of light years. With the combined effects of normal matter, dark matter, dark energy, neutrinos and radiation all affecting how matter clumps, collapses and separates over time, the great cosmic web we see is in tremendous agreement with our best theories: the Big Bang and General Relativity. Yet this understanding was only possible because of the pioneering work of Edwin Hubble, who identified a large number of galaxies outside of our own, correctly measured their distance (following the work of Vesto Slipher's work measuring their redshifts), and discovered the expanding universe.

But what if the Milky Way weren't

located in one of the "strands" of the great cosmic web, where galaxies are plentiful and ubiquitous in many different directions? What if, instead, we were located in one of the great "voids" separating the vast majority of galaxies? It would've taken telescopes and imaging technology far more advanced than Hubble had at his disposal to even detect a single galaxy beyond our own, much less dozens, hundreds or millions, like we have today. While the nearest galaxies to us are only a few million light years distant, there are voids so large that a galaxy located at the center of one might not see another for a hundred times that distance.

While we've readily learned about our place in the universe from observing what's around us, not everyone is as fortunate. In particular, the galaxy MCG+01-02-015 has

not a single known galaxy around it for a hundred million light years in all directions. Were you to draw a sphere around the Milky Way with a radius of 100 million light years, we'd find hundreds of thousands of galaxies. But not MCG+01-02-015; it's the loneliest galaxy ever discovered. Our Milky Way, like most galaxies, has been built up by mergers and accretions of many other galaxies over billions of years, having acquired stars and gas from a slew of our former neighbors. But an isolated galaxy like this one has only the matter it was born with to call its own.

Edwin Hubble made his universe-changing discovery using telescope technology from 1917, yet he would have found absolutely zero other galaxies at all were we situated at MCG+01-02-015's location. The first visible galaxy wouldn't have shown up until we had 1960s-level technology, and who knows if we'd have continued looking? If we were such a lonely galaxy, would we have given up the search, and concluded that our galaxy encompassed all of existence? Or would we have continued peering deeper into the void, eventually discovering our unusual location in a vast, expanding universe? For the inhabitants of the loneliest galaxy, we can only hope that they didn't give up the search, and discovered the entire universe.



ESA/Hubble & NASA and N. Gorin (STScI); Acknowledgement: Judy Schmidt, of the loneliest void galaxy in the known: MCG+01-02-015.

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Skyscrapers January Meeting Minutes — 1/15/2016

Bob Horton called the Skyscrapers' January meeting to order at 7:30 p.m.

President, Bob Horton, welcomed everyone to the January meeting. Bob sadly announced the passing of Roger Menard and Minka Wescott. Roger was a very active member of Skyscrapers in the 70s and 80s and also was a presence at Ladd Observatory. Although not a member, Minka was an enthusiastic amateur at Ladd in the 80s and 90s. Bob asked for a brief moment of silence in honor of these good astronomy friends.

Announcements: Bob reported that the January Board meeting, which was scheduled for tomorrow afternoon, has been postponed one week to January 23. This Board meeting will be held either at Seagrave or at the Greenville Library. Details of the location will be sent by email to the membership in the coming week. If anyone is interested in learning more about how our organization is run, you are invited to attend. Board meetings are a good way to learn about executive board positions or shadow board members. • Bob noted that elections will be held in April and that Ed Haskell has been appointed as Chair of the Nominating Committee. • Bob remarked

that star parties in 2015 were a help in offsetting expenses and raising revenue for the organization. He noted that a star party was held last night at the Newport Art Museum. It was a great time for all who volunteered and stopped by to observe. Tracy Prell shared photos she took during that evening's event on the lawn of the museum. • Francine Jackson reported that there is a star party scheduled for next Friday, January 22, at Seagrave. About 20-25 attendees are expected. If you can help out, please let Francine know.

First Vice-President Report: Steve Siok noted tonight's January meeting is our holiday celebration. He thanked everyone for bringing a dessert to share. It was greatly appreciated. • Steve told those present that the next meeting will be held the first Friday in February, here at the Community Center. The speaker will be Professor Wallace Arthur who will talk about cosmic rays. The March program will feature Gordon Blackadder, a graduate student from Brown University, who will talk about high energy events in the center of the galaxy. The April meeting will feature two presenters from Harvard, one on the subject of water on Mars and the other on the origins of life in the galaxy.

Good of the Organization: Joe Filocco brought copies of CDs of his compilation of the Apollo 11 moon launch. If you would like a copy, please take one. • Bob showed an image of the daytime occultation of the crescent Moon and Venus. He also noted that Venus, which is in the morning sky, is lining up with Saturn and the crescent Moon. And lastly, he shared images of meteors from the recent Quadrantids shower.

The meeting ended at 7:50. Submitted by Tina Huestis, Secretary.

Steve Hubbard, long-time Skyscrapers member, spoke about his astronomical vacation in Chile. Steve joined the Southern Sky Tour to the republic of Chile and visited the cities of Santiago, La Serena and Vicuna, plus Las Campanas and Pangué Observatories last November (which is springtime in Chile). The journey took 13 hours in a plane and covered 5,199 miles of travel. Steve showed many photos and short videos of sights he experienced in the very vibrant and modern city of Santiago. He boarded a plane for the next leg of his trip to La Serena. From there he took a highway bus to the Pinguino Reserve, 45 minutes from the coast to see the Humboldt pen-

guins and other seabirds and sea lion colonies. He also visited Vicuna, which featured colorful street art on the walls of the businesses in the downtown. Steve noted that the area is known for its astro-tourism efforts. In addition to these exciting non-astronomy sights, Steve did visit the mountain top Las Campanas Observatory with its large Magellan Telescopes, as well as the private Pangué Observatory outside of Vicuna. Steve was able to observe at Pangué and saw 47 Tucanae (a globular cluster in the Tucana constellation), the Tarantula nebula, the Pencil nebula, the Southern Cross, and the Large and Small Magellanic Clouds. Steve reminded everyone that northern hemisphere constellations could still be seen in Chile, however they were all "upside" down!

Board of Directors Meeting Minutes — 1/25/16

Attendees: Kent Cameron, Jim Crawford, Ian Dell'Antonio, Ed Haskell, Jim Hendrickson, Tina Huestis, Francine Jackson, Lloyd Merrill, Bob Napier, Tracy Prell, Kathy Siok, and Steve Siok.

President Bob Horton called the meeting to order at 6:05 p.m. at the Greenville Library.

Treasurer's Report: Ed Haskell reported that new members Kerri and Linda Hurd, Steve and Maria Brown, and Jack Mertz will be voted on at the next meeting.

Programs: Tracy asked to give Anna Frebel a \$200 stipend for her presentation. Jim C. made the motion, seconded by Francine, which was passed unanimously.

Workshop Series: Francine mentioned that the Saturday talks will begin around April and that, as per Bob H., she will be looking for different topics than the previous ones.

Large Remote-Controlled Telescope: Ian wrote to Planewave. • He said that he needs more information on its impact on Skyscrapers. • Tracy asked where do we want to go with the telescope, would it be a way of increasing membership, for example. Will it also increase Saturday night attendance. Steve asked about what, if more members signed up for the organization, would they get for their membership; could it be more of a destination, like Frosty Drew? • There was also talk as to the education, research and remote access that this telescope would bring to the group, and would it be a way to increase



Steve Hubbard

membership. • Bob N. spoke of the remote use of other telescopes, that he hasn't gotten many people to respond to his, nor has the ATM's. • Ed brought up the place as a museum, and mentioned the diversity of our members. • Ian also brought up other instruments that would be needed, such as a weather station. Would it be like Brown's? Bob H. will ask Mike Umbricht about it; a way to remotely open and close the dome; local computing access and storage for it onsite, with some way to retain data (mentioned by Tracy); and permanent fiber connection. • Ian mentioned that Dave Targan will need to read this final grant draft. • For the grant, a committee was formed, which will include Steve, Kathy, Tracy, and Francine. • Jim C. asked about security for this new telescope. Will we need more insurance? Are there other facilities with similar equipment? Bob H.

will look into other places and their security needs. • Regarding what to do with security now? Are cameras needed; if so, how many? Bob N. said that he equipped his yard, and the cost wasn't prohibitive. Bob H. asked whether this would ultimately be a part of the grant – yes, but something should be done now. Jim C. and Bob N. will look into it, and the Trustees will allocate \$400. Tracy will also donate \$400.00 for them.

Nominations: Ed updated the group on the progress of the nomination committee. He noted that the committee was still seeking candidates for the positions of Secretary, Trustees, and the second Member-at-large. • Jim C. noted that, although he will no longer remain a Trustee, he will continue to assist in the trustee function around the grounds.

Miscellaneous: Tracy asked whether

Skyscrapers could join Pamela Shvak's Solar Activity page. Jim H. will "Like" her page for the organization. • Tracy also received 3D glasses from an online company and would like our feedback. • Jim H. reported that Amazon Smile has a nonprofit segment where an organization enters its ID# and receives quarterly checks from ½ of 1% of all purchases which mention its name. After discussion, it was decided Jim H. will set it up. • Francine, in conjunction with Jim H., asked to form a lighting committee, as most of the state's cities and towns are planning to change their lighting to LEDs. It was recommended that she investigate the support from the IDA as an advisory group.

Meeting adjourned at 7:47. Minutes were taken by Francine Jackson, temporarily filling in for the Secretary.

Leap Year & the Date of Washington's Birthday

by Francine Jackson

I'd like to wish a Happy Birthday to all of you who happen to be born on February 29th, as you will be able to actually celebrate your real day this year. You all know, of course, that this necessity in dating comes to us from Julius Caesar, who thousands of years ago created the concept of a "leap year" to occur every year divisible by four.

Unfortunately, over the centuries, that caused a rather large shift in the beginnings

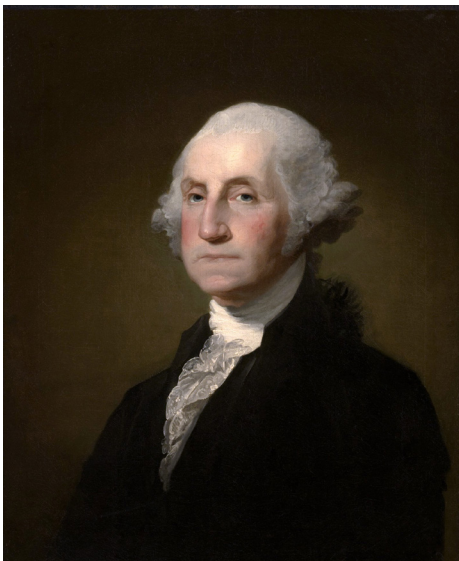
of the seasons. Especially important to this was the date of the vernal equinox, as the Catholic Church utilized this first day of spring in conjunction with the phases of the Moon to signal the celebration of Easter. Because of this, Pope Gregory XIII modified the calendar in 1582, based on a proposal by astronomer Aloysius Lilius. Gregory changed the number of leap years per most centuries to 97 instead of 100, by not having an extra day on centuries not divisible by 400. 1900 and 2100 will not have February 29th, but 2000 did.

In addition, for the people of Pope Gregory's time, to make this calendar work for the future, he realized that 10 days had to be thrown out of that calendar year: October 4th was immediately followed by October 15th. You can imagine how those who "lost" a birthday that year must have felt. However, this change was adopted very quickly by all of the European Catholic countries.

Those countries that weren't Catholic, however, kept to the Old Calendar for many years. Included in them were Great Britain and its American colonies; however, by the time they went on to the new system, an 11th day had to be lost to conform to the

Gregorian calendar. This came up recently in reading one of the old "Believe It or Not" book series, which explained why the Father of our Country, George Washington, was not really born on February 22nd, as we have always believed; in fact, he was born during the time of the old calendar, on February 11th. That would place his actual birthday the day before Abraham Lincoln's, whose February 12th conformed to the new style.

As this year is divisible by four, let's all celebrate February 29th, and thank Pope Gregory for fixing the calendar such that it will be a few centuries before another correction must be made. And, if you're going outside in the mornings now, be happy that you can look up and enjoy watching the motions of the planets for an extra day this year.

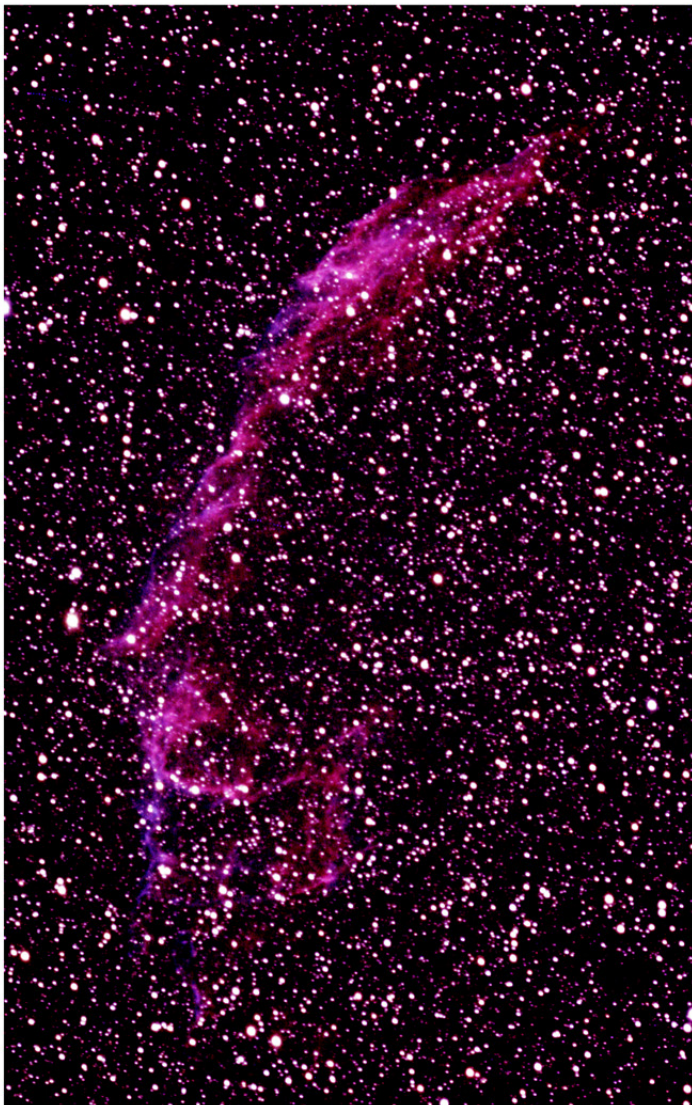


Francine Jackson is Skyscrapers Public Relations Spokesperson, writes the weekly newsletter for Ladd Observatory and serves as planetarian at the University of Rhode Island. See more at <http://theskyscrapers.org/francine-jackson>

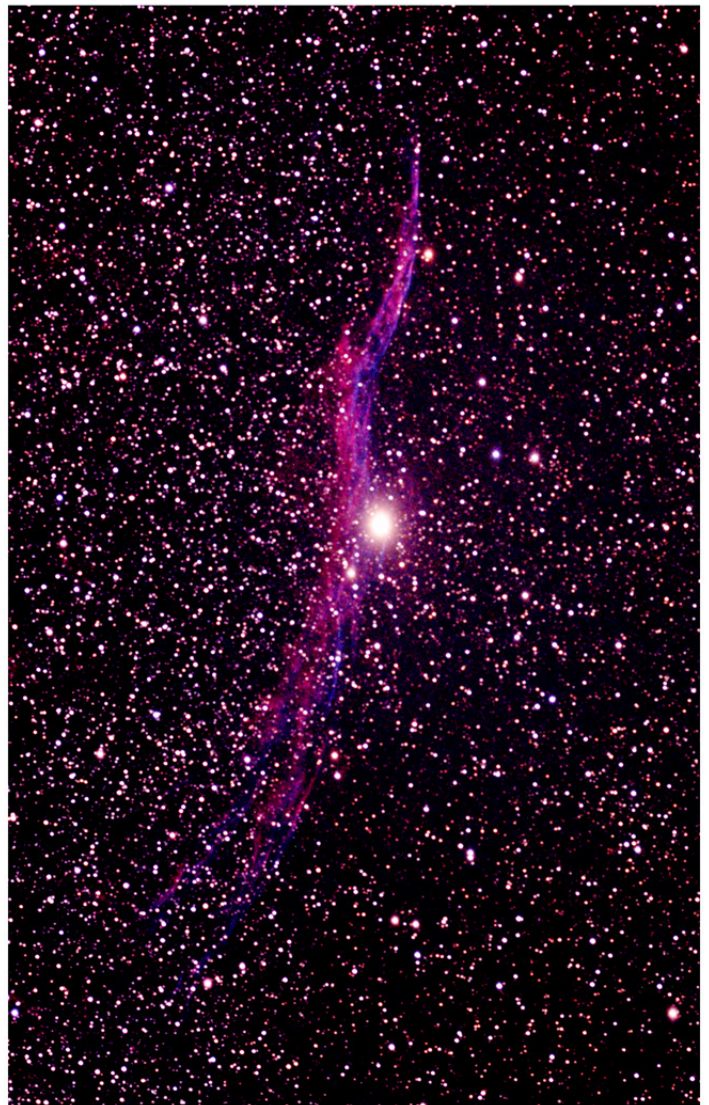


Here is a sequence of photos Bob Horton took of the occultation of Venus by the Moon on December 7. These were taken using a 4" Apo refractor in the B&H observatory at Brown. We were lucky in that it cleared just in time, and it remained clear for the reappearance of Venus when the pair were only 4 degrees above the horizon. A video can be seen at <https://youtu.be/J5mhBgT5ABk>





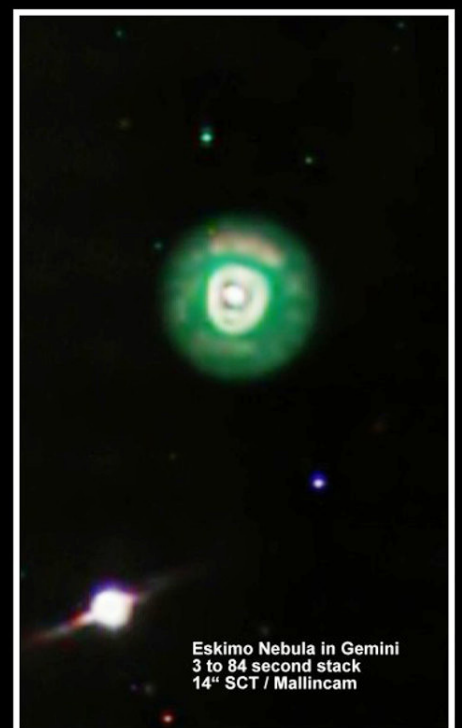
Eastern Loop of the Veil Nebula - The Network Nebula



Western Loop of the Veil Nebula - The Witch's Broom

Veil Nebula composite image by Tom Thibault. Telescope – Astro-Tech 65EDQ; Camera – Celestron Nightscape 8300C; Exposures – (10) 200 and (21) 300 Second; Total – 2.3 Hours; Processing – AstroFx, Digital Professional, and Photoshop

In between some high thin clouds Steve Hubbard was able to get some higher resolution images of the Eskimo Nebula and the core of M42. All with a 14" SCT and Mallincam and using a high dynamic stacking function on the imager. The Eskimo is a stack of between 3 and 84 seconds, M 42 is from 3 to 27 seconds.



Directions to Seagrave Memorial Observatory

From the Providence area:

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

From Coventry/West Warwick area:

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

From Southern Rhode Island:

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

From Northern Rhode Island:

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

From Connecticut:

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- or • Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

From Massachusetts:

Take Interstate 295 South (off Interstate 95 in Attleboro). Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 Peeptoad Road
North Scituate, Rhode Island 02857